ATMOSPHERE FAQ'S

How large is a micron? Can I see it in the air?

A micron is one-millionth of a meter. The ATMOSPHERE™ Air Purifier removes particulates as small as 0.009 microns, which is about 1,800 times smaller than the sharp end of a pin. A grain of pollen is 30 microns, dust mite by products are 10 microns, pet dander is 90 microns, smoke particles are 0.2 microns, and viruses can be as small as 0.02 microns. The trained human eye can only see contaminants that are approximately 50 microns in size.

Why would I want an air purifier for my home? Isn't the air inside my home protected form outside pollution?

Studies by the U.S. Environmental Protection Agency and Health Canada show that indoor pollutant levels inside the home may be much higher than outdoor levels. Indoor air pollution/contamination can cause or contribute to a variety of health problems, including asthma, allergies, nausea, and chronic respiratory diseases. The air inside your home can contain contaminants and particles that include dust, pollen, pet dander, mold, bacteria, virus, dioxin, formaldehyde and even radon decay by products.

How can I be sure that the ATMOSPHERE™ Air Purifier is really effective in removing most of these potential contaminant particles from the air inside a room?

The Association of Home Appliance Manufacturers (AHAM) has verified the ATMOSPHERE™ Air Purifier's Clean Air Delivery Rate (CADR) for the removal of airborne smoke, dust and pollen through independent laboratory testing. CADR is widely accepted as a valid measure for comparing the performance of portable air cleaners and has been reviewed and referenced by the U.S. Federal Trade Commission and the U.S. Environmental Protection Agency.

How effective is the ATMOSPHERE™ Air Purifier in improving the quality of the air in a room?

You can breathe easier knowing that the ATMOSPHERE™ Air Purifier is up to 99.99% effective in removing airborne contaminant particles down to sizes as small as 0.009 microns in a single pass through the system. In the recommended room size of 390 square feet (36 square meters) the ATMOSPHERE™ Air Purifier can reduce the particulate concentration by 80% in about 30 minutes. In addition, the ATMOSPHERE™ Air Purifier also reduces household odours from cooking, smoke, and pets. The ATMOSPHERE™ Air Purifier is also very effective at removing bacteria, viruses and moulds from the air that is drawn into the system. The ATMOSPHERE™ Air Purifier can also reduce formaldehyde. Formaldehyde is an irritant and suspected carcinogen that is emitted from some common household furnishings (e.g. carpet, ceiling tile) and products (e.g. wood products). Urea-formaldehyde glues and resins are used in some plywood and pressed board products, and they can slowly emit formaldehyde. The carbon filter contains two catalysts that destroy formaldehyde. The ATMOSPHERE™ Air Purifier is also very effective for the reduction of ozone and dioxin.

What certifications/approvals do we have?

usETLc – Certified to the U.S.'s ANSI/UL 507 safety standard for electric fans and Canada's safety standard C22.2 No. 113 for fans and ventilators

AHAM – Certified by the Association of Home Appliance Manufacturers (AHAM) to the ANSI/AHAM AC-1-2002 CADR (Clean Air Delivery Rate) test protocol for the removal of airborne tobacco smoke, dust and pollen. ATMOSPHERE™ Air Purifier's certified CADR is 250 which is equivalent to 7.1 M^3 per minute of purified air and a room size of 390 square feet or 36 square meters.

U.S. EPA's ENERGY STAR®– ATMOSPHERE™ Air Purifier exceeds the strict energy efficiency guidelines established by the United States Environmental Protection Agency for energy efficiency of room air cleaners.

Complies with International Electrotechnical Commission (IEC) safety standard 60335-1 and 60335-2-65.

What are the dimensions of the unit?

External Dimensions 15.43 in (38.1 cm) wide x 10.69 in (27.9 cm) deep x 28.9 in (73.7 cm) tall

Will the unit be shipped in one package?

Yes.

How much does the unit weigh?

Weight 10.9 kg

How long is the cord?

Cord Length 3.05 m

Where is the best location for the system?

The ATMOSPHERE™ Air Purifier can be placed in any room of a home. The housing design ensures proper clearance between the Air Purifier and the wall to allow full circulation of purified air. The Air Purifier can also be placed in the centre of a room, or in a corner, with no change in effectiveness. To avoid blocking airflow, don't place items close to the front or above the unit and do not place items on the unit. Avoid placing the Air Purifier in front of heating or air conditioning vents. Air Purifiers will be more effective in rooms where doors and windows are closed.

What is the optimal room size the ATMOSPHERE™ Air Purifier can purify?
According to AHAM we can claim a room size up to 390 square feet. (approximately 20 x 19.5 foot room) or 36 square meters (approximately 6 by 6 meter room). This conforms to the AHAM CADR Certification Program criteria of an 80% reduction of airborne particulate contaminants in a room of up to 390 square feet.

Can we use the ATMOSPHERE™ in commercial settings, for example a bar or restaurant efficiently?
The ATMOSPHERE™ Air Purifier is intended to be used only in residential and light commercial environments. An example of a light commercial environment would be an office or retail shop. The ATMOSPHERE™ Air Purifier is designed for room sizes up to 390 square feet or 36 square meters based on standard ceiling heights of 8 feet or 2.4 meters. It is not intended for use in industrial environments, factories or bars, because of the large room sizes and continuous source of contamination. Use in unintended environments will be considered a misuse of the product and could result in poor performance and short filter life.

Can I change the settings remotely?
Yes, there is a convenient, slim-profile remote control included and there is a slot in the rear handle to store the remote in when not in use.

How does the air circulation process work?
The ATMOSPHERE™ Air Purifier features the CLARUSTM filtration system with 3 stages of filtration for awesome performance. Contaminated air is drawn at low velocity toward the front of the unit to minimize noise and drafts. The contaminated air enters through and around the front shield where it encounters the pre-filter, the first stage of filtration, the pre-filter removes large, lint-like particles. The second stage consists of a particle filter with better than HEPA performance for removing contaminants such as; smoke, bacteria and virus, particles as small as 0.009 microns in size. The last and final stage is the carbon filter where objectionable smells, such as tobacco, pet, cooking odors, formaldehyde, dioxin and ozone are removed. The purified air is driven out the back and upward through the grill of the rear housing at high velocity to maintain good room mixing. While often over looked in air treatment performance, room mixing is a very important aspect of room cleaning. Air treatment systems, all of them, work by dilution in that they are constantly diluting the contaminated air of the room with the cleaned or purified air that is discharged from the unit.

What is the difference between the ATMOSPHERE™ Air Purifier and the Ionization-type air cleaners we hear about?
ATMOSPHERE™ uses CLARUSTM a three (3) stage mechanical filtration system featuring a pre-filter, particulate filter and carbon filter. They remove contaminants and pollutants from the air that is drawn into the system, safely, effectively and are low in maintenance. The ionizer-type systems use a technology called ESP (Electrostatic precipitation) where electronically charged metal plates “trap” particles and many then supplement with ion discharge as a means of cleaning the air in the room. These technologies are usually very inefficient at removing particles from the air in that most of the contaminant that was drawn into the system was blown back into the room and the ionized particles will then collect on surfaces within the room such as furniture, walls, ceiling and floors, including the occupant. The contaminant is not really removed it is just deposited back into the room. The ESP technology also suffers from high maintenance and requires frequent cleanings to maintain performance. Testing has verified that most of these types were ineffective in removing dust, smoke and other particles from the air and exposes users to potentially harmful ozone levels. This is a concern for those with asthma, respiratory illnesses and allergies.

What should I know about the ozone produced by electronic or ionic-type air cleaners?
Ozone is a gas that is a strong oxidizer and is considered harmful to human health even at relatively low concentrations. It is produced by electrical discharges, specific wavelength light and by photochemical reactions between sunlight and smog. Manufacturers of ozone creating devices often use misleading terms to describe ozone, such as "energized oxygen" or "pure air" to suggest that ozone is a healthy kind of oxygen. Ozone is a toxic gas with vastly different chemical and toxicological properties from oxygen.

The same chemical properties that allow high concentrations of ozone to react with organic material outside the body give it the ability to react with similar organic material that makes up the body, and potentially cause harmful health consequences. When inhaled, ozone can damage the lungs (see - "Ozone and Your Health" - www.epa.gov/airnow/brochure.html). Relatively low amounts can cause chest pain, coughing, shortness of breath, eye irritation, and throat irritation. Ozone may also worsen chronic respiratory diseases such as asthma and compromise the ability of the body to fight respiratory infections.
To be effective in removing most indoor air contaminants the concentration of ozone would have to greatly exceed health standards. In the process of reacting with chemicals indoors, ozone can produce other chemicals that themselves can be irritating and corrosive.

Why do we use HEPA instead of a UV light in our system? The particulates that the HEPA filter reduces - don't they build up in the filter and cause problems?
The technologies of HEPA filtration and UV light target different contaminates, with a little overlap. HEPA filtration targets particulate and biological contaminants while UV light can be used against odors and to destroy biological contaminates such as bacteria, fungal

spores, and viruses. HEPA filtration works by trapping the biological contaminates within the fibers of the filter media where they can not thrive because the material used is anti-bacterial in nature and because there is not enough moisture to support growth or life. UV doesn't trap any contaminates but attempts to destroy the biological contaminates as they pass through the UV field if enough contact time and proper wavelength of light is used. In our opinion HEPA filtration is far superior to UV in terms of room cleaning performance. The only challenge with the build up of contaminates on the HEPA filter is that it requires replacement at the end of filter life but with throwing out the filter, all of the collected contaminates go with it, a big positive. UV needs bulb(s) replaced about once a year and by itself, doesn't remove any contaminates from the air.

How many speeds does the ATMOSPHERE™ Air Purifier have?
The ATMOSPHERE™ Air Purifier features five different speeds, plus an automatic mode that can sense particles in the air and switch the unit to the appropriate speed to keep the air in a room clean and fresh. The five speeds and automatic mode may be selected on the unit control panel, or by the remote control. The five speeds include Whisper speed, Speed 2, Speed 3, Speed 4, and Speed 5.

How does the AUTO mode or Particle Sensor function?
The AUTO mode features IntelliSense technology – exclusive to the ATMOSPHERE™ Air Purifier. This provides an automatic mode that monitors and protects the quality of your room's environment, even when you're not there. The IntelliSense monitoring system is highly sensitive and can detect contaminant particles such as smoke, dust and pollen. It will increase or decrease the speed of operation to remove particles as needed and provide a display of how clean or dirty the air in the room environment is at any point in time. The particle sensor is active whenever the air purifier is running and it detects the density of airborne particulate contaminants (amount of particulate contaminant in a specific volume of air). When the air is very dirty, all five bars on the display are red; as the air is cleaned by the air purifier, the display changes to four red bars, then to three yellow, two yellow, and finally – when the air is clean – one green bar. Knowing how clean the air in the room helps you make an appropriate selection when setting the fan speed manually. Otherwise, you can select Auto Mode by pressing the AUTO button, and let IntelliSense control the ATMOSPHERE™ Air Purifier's speed.

How can I clean the system?
Wipe the exterior surfaces with a damp cloth and dry. If very dirty, use a mild detergent solution, such as L.O.C.™ Multi-Purpose Cleaner. Do not use abrasive cleaners or products containing ammonia, alcohol, or paint thinner. These cleaners may damage the surface.

What type of operating modes are available?

Continuous Operation includes the Manual and Auto modes defined below:

1. MANUAL Mode – Provides continuous operation until you turn the Air Purifier off or change to another mode. Fan speed remains the same until you change it manually.
2. AUTO Mode – Provides continuous operation until you turn the Air Purifier off or change to another mode. Fan speed automatically changes in response to input from the particulate Sensor: the dirtier the air, the higher the fan speed.

   **For maximum air cleaning effectiveness, continuous operation is recommended.

Manual Operation includes the Timer and Turbo modes defined below:

3. TIMER Mode – Operates for a specified time period, which you select, at a fan speed you select. At the end of the selected time (from ½– 12 hours), Air Purifier turns off.
4. TURBO Mode – Provides a burst of cleaning power. Air purifier operates at highest speed (speed 5 or turbo) for 30 minutes, then returns to the previous mode of operation and speed.

Does the unit utilize much energy consumption?

ATMOSPHERE™ has earned the U.S. government's ENERGY STAR® rating by exceeding the U.S. Environmental Protection strict guidelines for energy efficient performance. This agency sets the criteria to help shoppers for large and small home appliances identify the most energy-efficient products on the market. Customers can be assured that the appliance is a high-performance product that will lower its monthly operating costs for the life of the product. The following table contains nominal energy use values at each operating speed and off mode.

Speed	Watts
Off	0.8
1	3.2
2	7.4
3	15
4	29
5 or Turbo	51

What is •CADR" and what is CADR of the ATMOSPHERE™ Air Purifier?

CADR is an acronym for Clean Air Delivery Rate and is a performance rating that measures the volume of purified air an air treatment system can deliver in a minute's time. It is considered by many as the best method for determining a portable air treatment systems initial room cleaning performance because it challenges the entire air treatment system with contaminants that are common to our households such as, smoke, dust, and pollen. The testing is done in a real room and has been reviewed and referenced by the U.S. Federal Trade Commission and the U.S. Environmental Protection Agency.

The speed setting table shows the nominal values of the volume of treated air delivered per minute by the ATMOSPHERE™ Air Purifier at each speed setting.

Speed Setting	CADR
1 (Whisper)	50 CFM (1.4 M^3/Min.)
2	100 CFM (2.8 M^3/Min.)
3	150 CFM (4.2 M^3/Min.)
4	200 CFM (5.7 M^3/Min.)
5 or Turbo	250 CFM (7.1 M^3/Min.)

CADR = Volume of purified air delivered per minute.
CFM = Cubic Feet per Minute
M^3/Min = Cubic Meters per Minute

How many filters are in the ATMOSPHERE™ Air Purifier?

There are three filters featured in the ATMOSPHERE™ Air Purifier's CLARUSTM filtration system. There is a nano composite pre-filter, a better then HEPA grade particle filter, and a chemically engineered activated carbon filter.

What does the pre-filter do?

The pre-filter is made from a nano composite technology material and removes larger airborne lint and dust particles from the air before they enter the particulate filter.

What does the carbon filter in my ATMOSPHERE™ Air Purifier do?

The ATMOSPHERE™ Air Purifier also features an carbon filter that utilizes 1,900 grams of a chemically engineered activated carbon that has a surface area approximately equal to 366 US football fields (226 soccer fields) or over 17 million square feet (1.6 million square meters). The two catalysts used along with the expansive surface area effectively reduces formaldehyde, dioxin, ozone, and odours from smoking, cooking, pets and other household sources.

What is a HEPA filter and what does it do?

HEPA stands for High Efficiency Particulate Arrestor and is a performance standard for particulate filters. In order to achieve a true "HEPA" rating, a particulate filter needs to capture 99.97% of 0.3 micron sized particles that are drawn into it, at rated airflow. The ATMOSPHERE™ Air Purifier is more efficient by eliminating up to 99.99% of particulate

contaminants between 0.009 microns and larger that were drawn into the system, not just the filter media. The ATMOSPHERE™ Air Purifier has been scientifically proven to effectively remove 7 classes containing 80 different particulate contaminants such as airborne allergens, bacteria, fungal spores, pollen, viruses, minerals including asbestos, and radon decay by-products.

Is there air leakage around the HEPA filter and if so, what is the percentage?

No, it seals tightly. There is a soft gasket material around the perimeter of the particulate filter that provides an excellent seal for greater efficiency. The average leakage value reported by an independent laboratory was 0.00015% and can be attributed to the measurement variation within our target 3 digit test accuracy. The deviation between filter and system was so small it is considered negligible.

What is the HEPA filter made from and is it OSHA approved?
The particulate filter is made from an enhanced non-woven melt blown polypropylene material. While OSHA does not approve products, OSHA does recommend the use of HEPA filters in certain occupational settings. It is reassuring to know that the filter used in ATMOSPHERE™ has exceeded the HEPA requirements. In fact, it has been tested by an independent laboratory and demonstrated better than HEPA performance.

Is there a performance curve to verify the reduction of particulates that are 0.009 micron in size?
We have independent laboratory test results supporting our removal of 99.996% of particulate contaminants that are drawn into the ATMOSPHERE™ Air Purifier at the 0.009 microns size and these are available via the Technical Information Packet.

Does the ATMOSPHERE™ Air Purifier filter any microbes from the air?
Yes, the ATMOSPHERE™ Air Purifier can effectively filter a variety of airborne particles including bacteria, viruses and fungal spores. The specific claims are listed in the product literature.

Does the ATMOSPHERE™ Air Purifier filter the Avian Influenza virus?
Yes, the ATMOSPHERE™ Air Purifier can effectively filter a variety of viruses, including Influenza A viruses. The computer model predicts that the Influenza A viruses would be filtered by 99.992%. Since the Avian flu viruses are in the Influenza A virus class, the ATMOSPHERE™ Air Purifier could effectively filter the Avian Influenza virus However, since a primary route of exposure to this virus is by physical contact, not inhalation, the ATMOSPHERE™ Air Purifier should not be used as your only means of protection against Influenza A viruses.

Does that mean that the ATMOSPHERE™ Air Purifier can protect us from airborne disease causing microbes like the Avian flu?
No, the ATMOSPHERE™ Air Purifier can help reduce the risk, but it can only treat the air that is drawn into the system. It cannot protect a person from nearby coughing or sneezing. Many respiratory viral diseases are also spread by hand contact with other people or from hard surfaces, such as doorknobs.

Can the bacteria and viruses trapped on the filter, multiply and escape back into the air?
No, viruses require living cells to reproduce, and both bacteria and viruses require water and nutrients to reproduce. Most pathogenic bacteria and viruses are destroyed due to dehydration caused by the airflow through the filter. HEPA filters also have a long history of use in applications like hospital isolation wards, to prevent the spread of airborne microbes.

How will I know it is time to replace the odour or particulate filters and clean the pre-filter, do I need to keep track of hours of usage for each filter?
No, both the particulate and the odour filters have electronic indicators that will alert you when it is time to change filters and there is an indicator to alert you when the pre-filter needs to be cleaned as well. The filter monitor icons will display which filter needs attention and the colours will indicate the status:

Colour	Filters	Condition	Response
Green	All 3	Satisfactory	Until colour changes
Amber	HEPA & Odour	Should be replaced soon	About 2 weeks
Red	Pre-filter	Needs cleaning	Will blink until you clean the pre-filter and reset
Red	HEPA & Odour	Replace immediately	Will blink until the HEPA or odour filters are replaced and reset

NOTE: Whenever a filter monitor shows Amber or Red, the Air Purifier beeps three times each time you press a control button as an added reminder that a filter needs attention. Remember to reset the filter monitors after cleaning or replacing any of the filters.

How often do we change the carbon or particulate filters and clean the pre-filter?
Pre-Filter: Should be cleaned when needed, varies between 2 and 12 months and is dependant on the hours of usage/day + speed of operation. We recommend cleaning the IntelliSense (particle) Sensor Filter at the same time.
Particulate: Is a replace only filter and life varies between 3 months to 5 years.
The life is dependent on the hours of usage/day + speed of operation + particulate sensor readings. Recommend replacing every 5 years regardless of speed or hours of use.
Carbon: Is a replace only filter and life varies between 4 to 12 months. The life is dependent on the hours of usage/day + speed of operation. Recommend replacing every 12 months regardless of speed or hours of use.

How do I maintain the filters in my ATMOSPHERE™ Air Purifier?
The best method for cleaning the pre-filter and the particulate sensor filter is to vacuum them. They may also be rinsed in water or washed with a mild detergent solution such as L.O.C.™ Multi-Purpose Cleaner, but they should be completely dry when they are returned to the unit. The carbon filter and the particulate filter are replace only filters, these filters should not be cleaned but will need to be replaced periodically. Please refer to the owner's manual for complete instructions concerning filter access.

Were any patents acquired?
Yes patents have been both applied for and now acquired. The following list is a brief summary:
AM1153: AIR TREATMENT SYSTEM – Granted – This design patent application is directed towards the ornamental appearance of the Atmosphere air treatment system.
WN311.: AIR TREATMENT FILTER AND RELATED METHOD – Pending – This application is directed towards an activated carbon filter. Also provided is a method to treat a gas stream with the filter.
WN3120: CONTROL PANEL ASSEMBLY – Pending – This application is directed towards a control panel assembly, and more particularly, towards a control panel assembly for an air treatment system.
WN3121: CONTROL METHODS FOR AN AIR TREATMENT SYSTEM – Pending – This application relates to control systems and methods, and more particularly to control systems and methods for an air treatment system.
WN3122: AIR TREATMENT SYSTEM – Pending – This application relates to various mechanical features that can be incorporated in an air treatment system.
WN3123: Filter – Pending – This design application is directed towards the ornamental appearance of a filter for an air treatment system.